



# WEBINAR: The State of Rates in North Carolina and the Water and Wastewater Rates Dashboard

Thursday, March 16, 2017  
2:00 – 3:30 PM ET

This program is made possible under a cooperative agreement with EPA.



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Environmental  
Finance  
Center  
12101 E. 11th St. Suite 100  
Durham, NC 27703

EFCN  
environmental finance center network

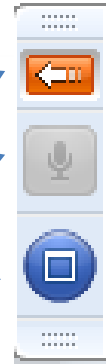
# Logistics

At the top right corner of your screen:

Show your control panel to submit questions and see answers

All phones/microphones are muted for the duration of the webinar.

Toggle between full screen/window screen view

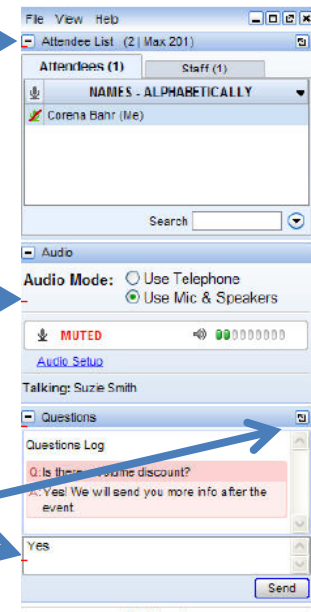


## Control Panel:

Attendee List

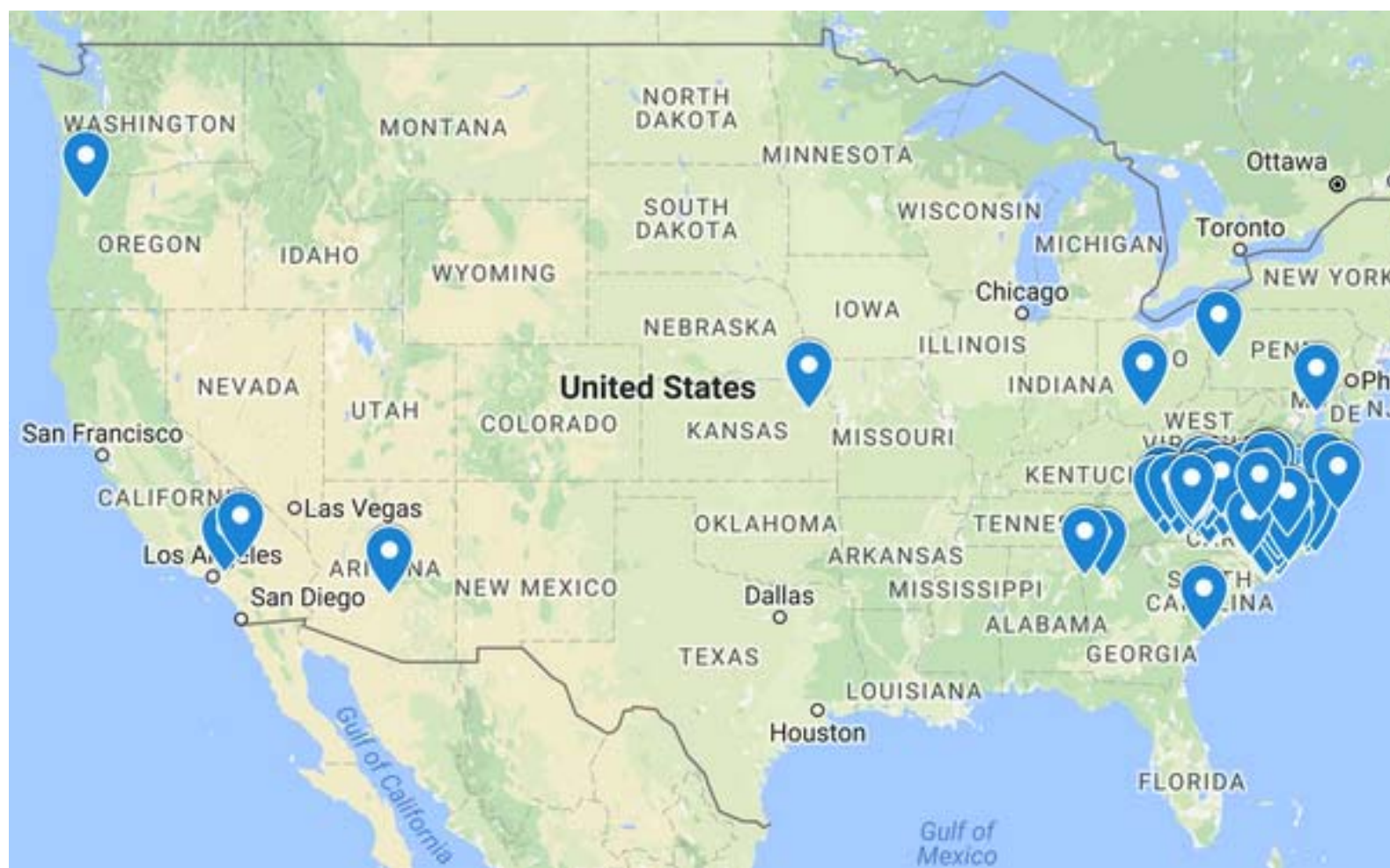
Audio: please choose between speakers and telephone. If you do not hear audio right now, please check your speaker volume or enter #[audio pin]# if using phone.

Submit questions in the Questions box at any time, and press [Send]. To undock and increase the size of the box, click on top right corner icon.





## Registrants of this webinar





## About the Environmental Finance Center Network (EFCN)

The Environmental Finance Center Network (EFCN) is a university-based organization creating innovative solutions to the difficult how-to-pay issues of environmental protection and improvement. The EFCN works with the public and private sectors to promote sustainable environmental solutions while bolstering efforts to manage costs.

## The Smart Management for Small Water Systems Program

This program is offered free of charge to all who are interested. The Project Team will conduct activities in every state, territory, and the Navajo Nation. All small drinking water systems are eligible to receive free training and technical assistance.



[www.efcnetwork.org](http://www.efcnetwork.org)



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- Environmental Finance Center at University of North Carolina at Chapel Hill
- Environmental Finance Center at Wichita State University
- EFC West
- New England Environmental Finance Center at University of Southern Maine
- Southwest Environmental Finance Center at the University of New Mexico
- Syracuse University Environmental Finance Center
- Environmental Finance Center at University of Maryland
- American Water Works Association (AWWA)



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## Areas of Expertise

- Asset Management
- Energy Management Planning
- Rates and Finance
- Leadership Through Decision-making and Communication
- Managing Drought
- Water Loss Reduction
- Collaborating with Neighboring Communities
- Multi-funding
- Water Conservation
- Management and Finance Tools and Techniques
- Climate Change Resiliency
- Workforce Development

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**Get Free Help**

Small water systems can request free technical assistance from our experts on finance and management challenges.

"The thing about working with the EFCN is availability; I can call anytime with a quick question or to get outside advice."

Resource Library  
E-Learning Modules  
**Funding Sources by State**  
Map of Water and Wastewater Rates Dashboards

## Navigating to Funding Tables

Step 1: efcnnetwork.org

Step 2: Select "Funding Sources by State" under the Resources Tab



[www.efcnetwork.org](http://www.efcnetwork.org)



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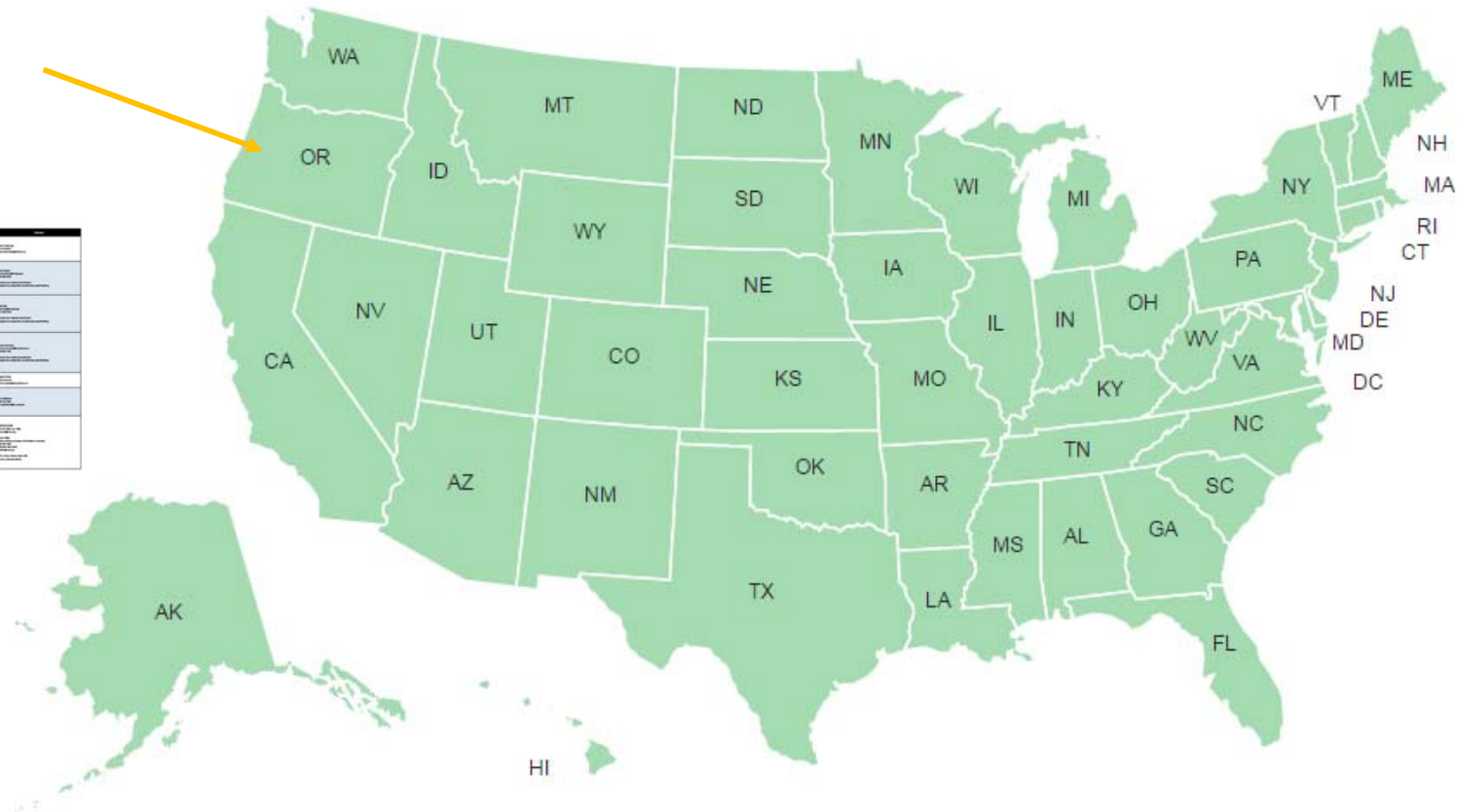


## Funding Sources by State

*Note: Some states may have additional resources listed below the map.*

Click on the map below to view funding sources for each state:

Click on an individual state to view funding table.

[illegible]





# The State of Rates in North Carolina and the Water and Wastewater Rates Dashboard - 2017



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# Annual North Carolina Water and Wastewater Rates Survey



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- Collaboration since 2005
- 2017 survey completed: 441 utilities included (85%)
- Free, online information: tables, summary report, Rates Dashboard, rate sheets at <http://www.efc.sog.unc.edu> and <http://www.nclm.org>



[www.efcnetwork.org](http://www.efcnetwork.org)



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# Webinar Objectives

## **The Big Picture**

Gain a broad contextual knowledge of rates and financial practices that are prevalent among utilities throughout the state

## **The Narrow Focus**

Know how to use the NC Water and Wastewater Rates Dashboard in various ways to evaluate, compare, and benchmark rates and finances

## **The Unknown**

Get your questions answered as you set your water and wastewater rates for next year



# THE BIG PICTURE:

## THE STATE OF RATES AND FINANCES IN NC



[www.efcnetwork.org](http://www.efcnetwork.org)



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# Main Data Sources

- January 2017 **water/wastewater rates** from the NCLM-EFC rates survey
- FY2015-16 **audited financial statement data** compiled by the LGC
- 2015 **socioeconomic data** from the U.S. Census Bureau
- March 2016 **water system characteristics** from U.S. EPA SDWIS

# By the Numbers 2017

Most data are published in the 2017 NCLM/EFC North Carolina Water & Wastewater Rates Survey Report



[www.efcnetwork.org](http://www.efcnetwork.org)



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Picture Source: Indio Water Authority <http://www.indiowater.org/index.aspx?page=587>

NC local government utilities collected  
more than **\$2.7 billion**  
in water and wastewater  
operating revenues in FY2016

Not including ~80 municipalities with missing data at the time of this presentation



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Charlotte Water collected  
**\$377 million**  
in water and wastewater  
operating revenues in FY2016

Highest in North Carolina

Picture Source: Charlotte Water <http://charlottenc.gov/Water/Pages/Home.aspx>



CHARLOTTE  
**WATER** **CHARLOTTE WATER**



Town of Proctorville collected

**\$19,170**

in wastewater operating revenues  
in FY2016 (no water system)

Lowest in North Carolina



Picture Source: Google Maps streetview



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# Polling Question for Utilities

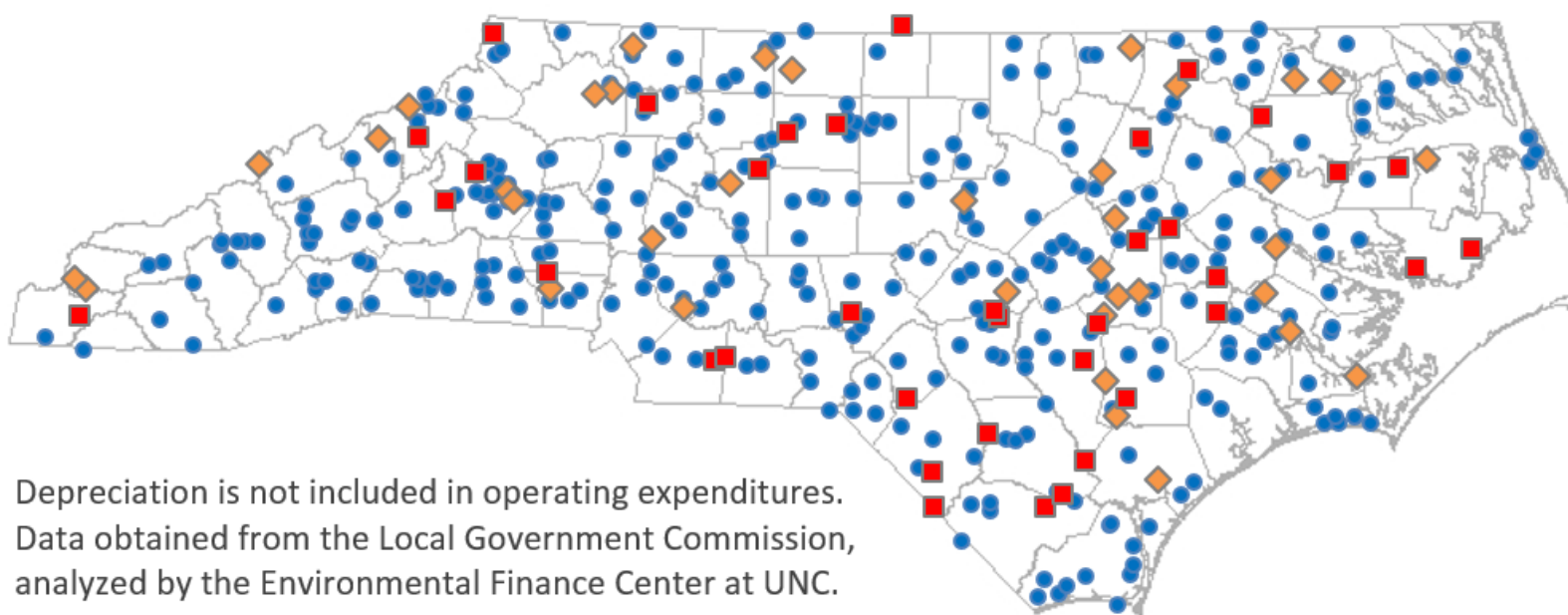
How satisfied are you with your current rates?

- Not at all – need an overhaul
- Not very – they need a lot of work
- Somewhat – tweaks needed
- Very – no changes needed

# Do Rates Cover Utility Costs (FY2016)?

## Local Government-Owned Water and Wastewater Utilities' Cost Recovery in FY 2016

- Operating revenues < operating expenditures (10%)
- ◆ Operating revenues < operating expenditures + principal + interest on long-term debt (10%)
- Operating revenues > operating expenditures + principal + interest on long-term debt (81%)



n = 386 (FY 2016)

Not including ~80 municipalities with missing data at the time of this presentation

# Small utilities face greater financial challenges

## Local Government-Owned Water and Wastewater Utilities' Cost Recovery in FY 2016

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- ◆ Operating revenues < operating expenditures + principal + interest on long-term debt (10%)
- Operating revenues > operating expenditures + principal + interest on long-term debt (81%)

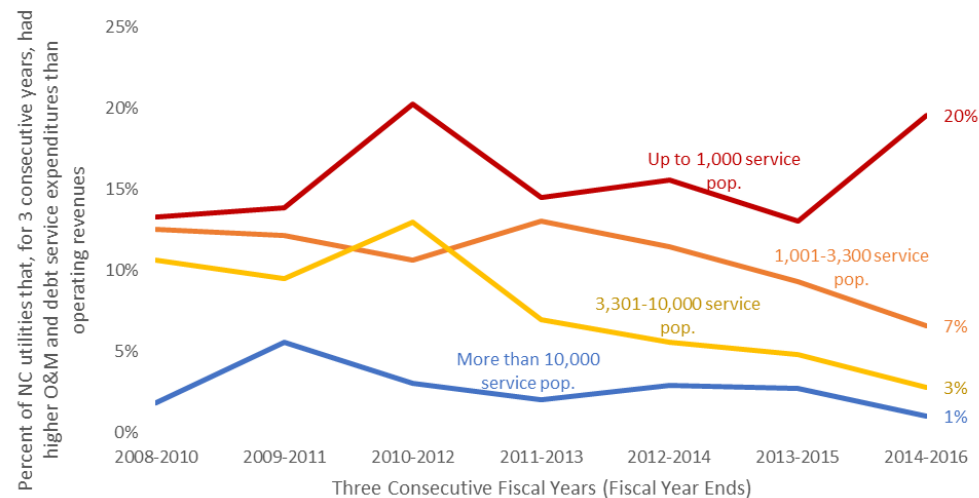
Number of service connections	# of utilities	■	◆	●
< 1,000	143	17%	11%	72%
1,000 - 10,000	163	2%	10%	87%
> 10,000	48	0%	4%	96%



From the EFC's *Environmental Finance* blog  
<http://efc.web.unc.edu/2017/03/02/raising-rates/>



Between 13%-20% of the **smallest local government utilities in NC (serving fewer than 1,000 people)** consistently had higher expenditures than revenues in three consecutive Fiscal Years  
 Utilities in larger population groups improved their financial performance over time



Analysis by the Environmental Finance Center at the University of North Carolina, Chapel Hill.  
 Data sources: Audited annual financial statements compiled by the NC Department of State Treasurer State and Local Government Finance Division; EPA SDWIS database for service population estimates. Only local governments with water utilities are analyzed.

## Are Utilities that Need to Raise Rates Actually Raising Rates?

MARCH 2, 2017 / SHADI ESKAF / 0 COMMENTS

Print PDF

What happens if a water utility collects less in revenues than it pays in expenditures in one year? It will raise some alarms, but some utilities might be able to weather that shortfall by dipping into their reserves and bounce back the following year. But what happens if a water utility collects less in revenues than it pays in expenditures in *three consecutive years*? That is probably a strong indication that the rates it is charging its customers are too low. Assuming that

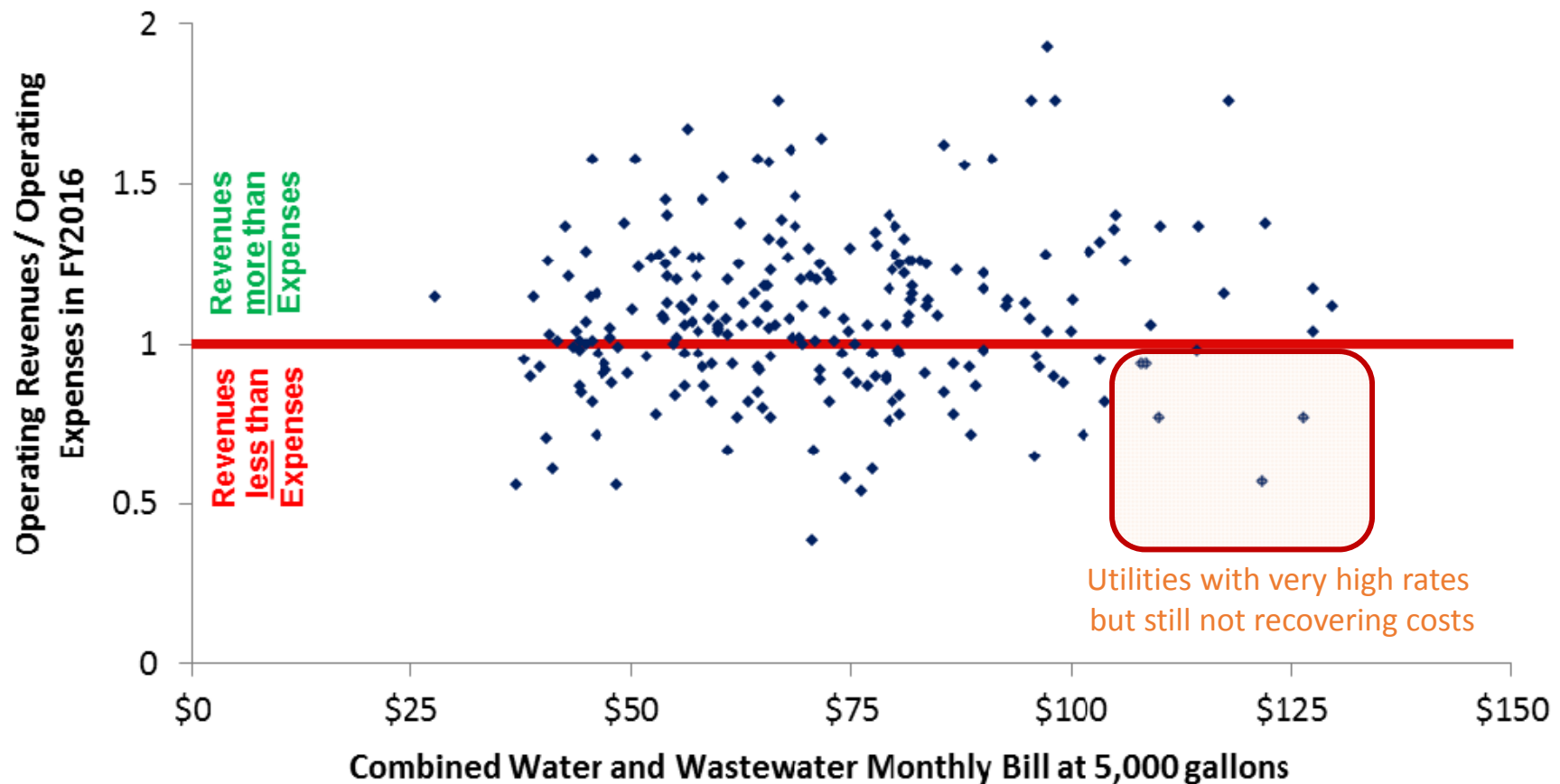


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# FY 2016 Rates vs. FY 2016 Operating Ratios



# Half of the utilities charge residential customers more than **\$70.65** for combined water and wastewater per month in 2017

Pictures' Source: Harris Teeter's website  
Items' prices are approximated, not on sale



For “inside” residential customers using 5,000 gallons/month



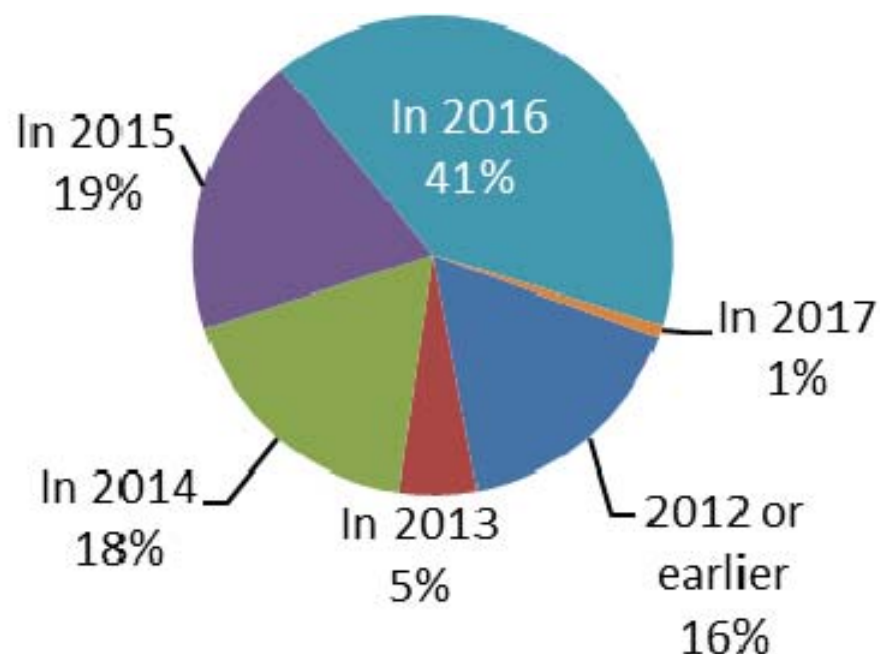
# Polling Question for Utilities

What is your anticipated rate increase request for next year?

- No change
- 0.1% - 2.9%
- 3.0% - 5.9%
- 6.0% - 9.9%
- 10% or more

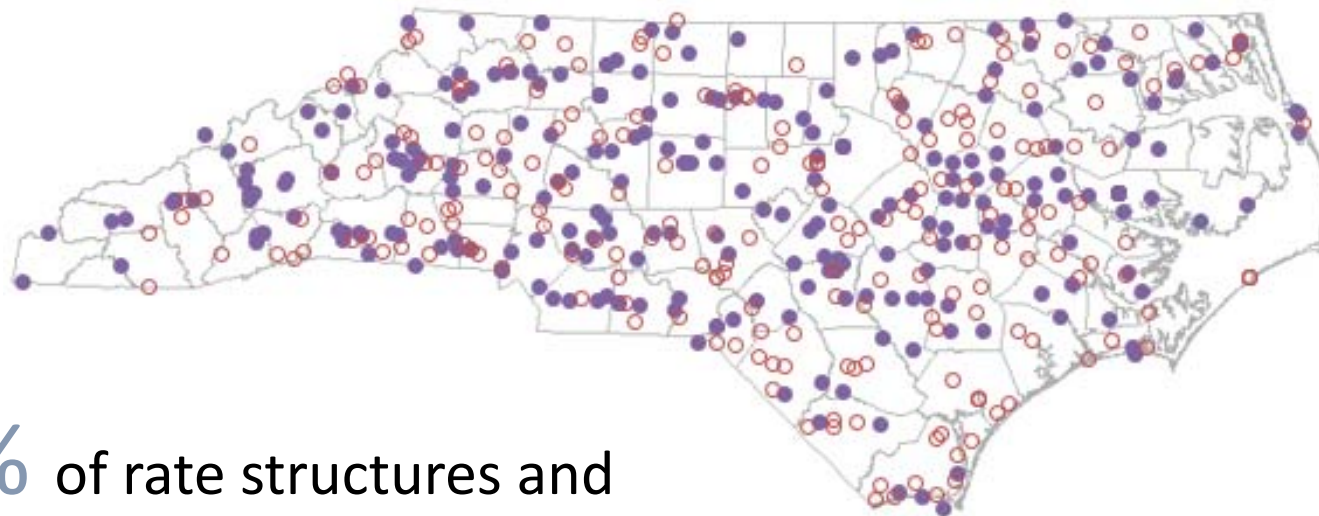


# Rate increases are **very common**



**60%** changed rates within the past 2 years

**Only 16%** of rate structures have not changed since 2012



Water rates in **44%** of rate structures and

Wastewater rates in **46%** of rate structures were  
raised last year

Out of 386 water & 328 wastewater rate structures since last year

Half of the rate increases were greater than  
**4.1%** for water and **4.9%** for wastewater

At 5,000 gallons/month



Published in 2017 NCLM/EFC North Carolina Water & Wastewater Rates Survey Report

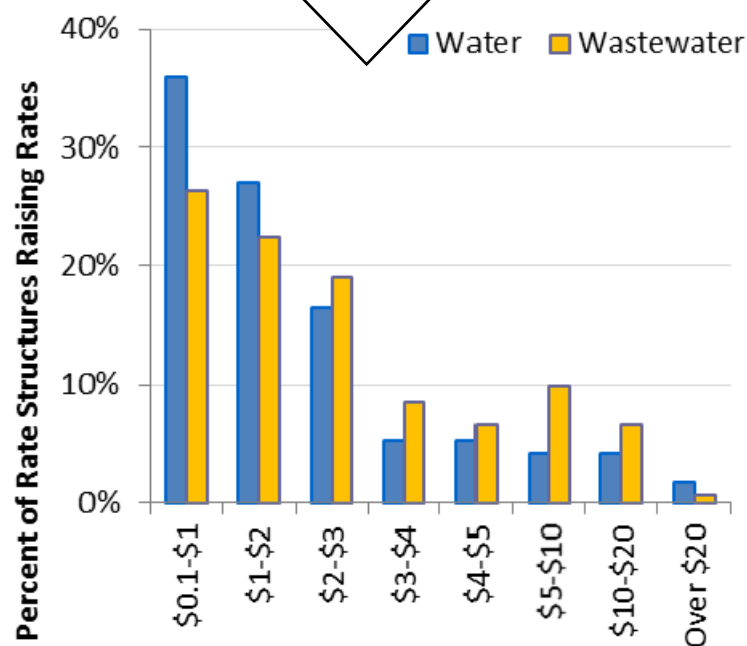
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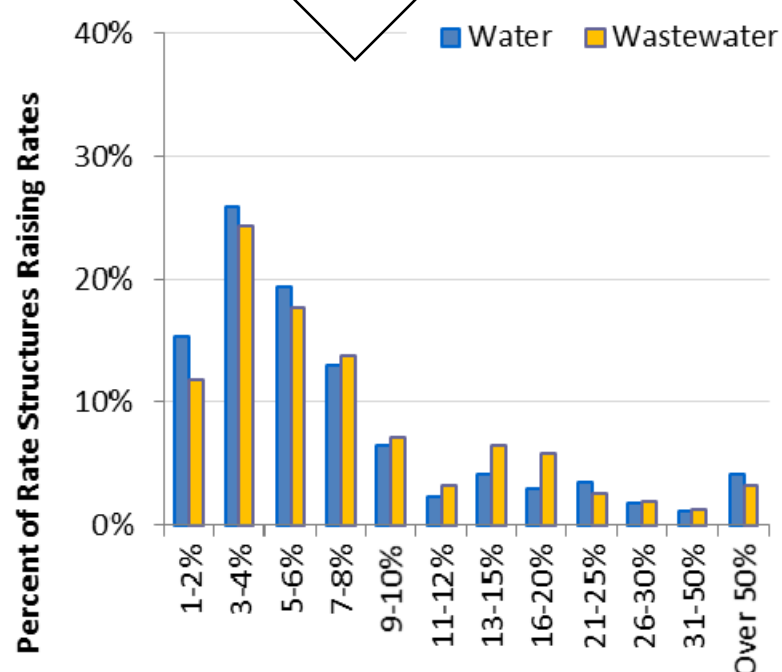
# Most rate increases last year were less than \$3/month, and in the 2%-6% range

Median increase to monthly bill for 5,000 gallons:  
\$1.29 water, \$1.80 wastewater



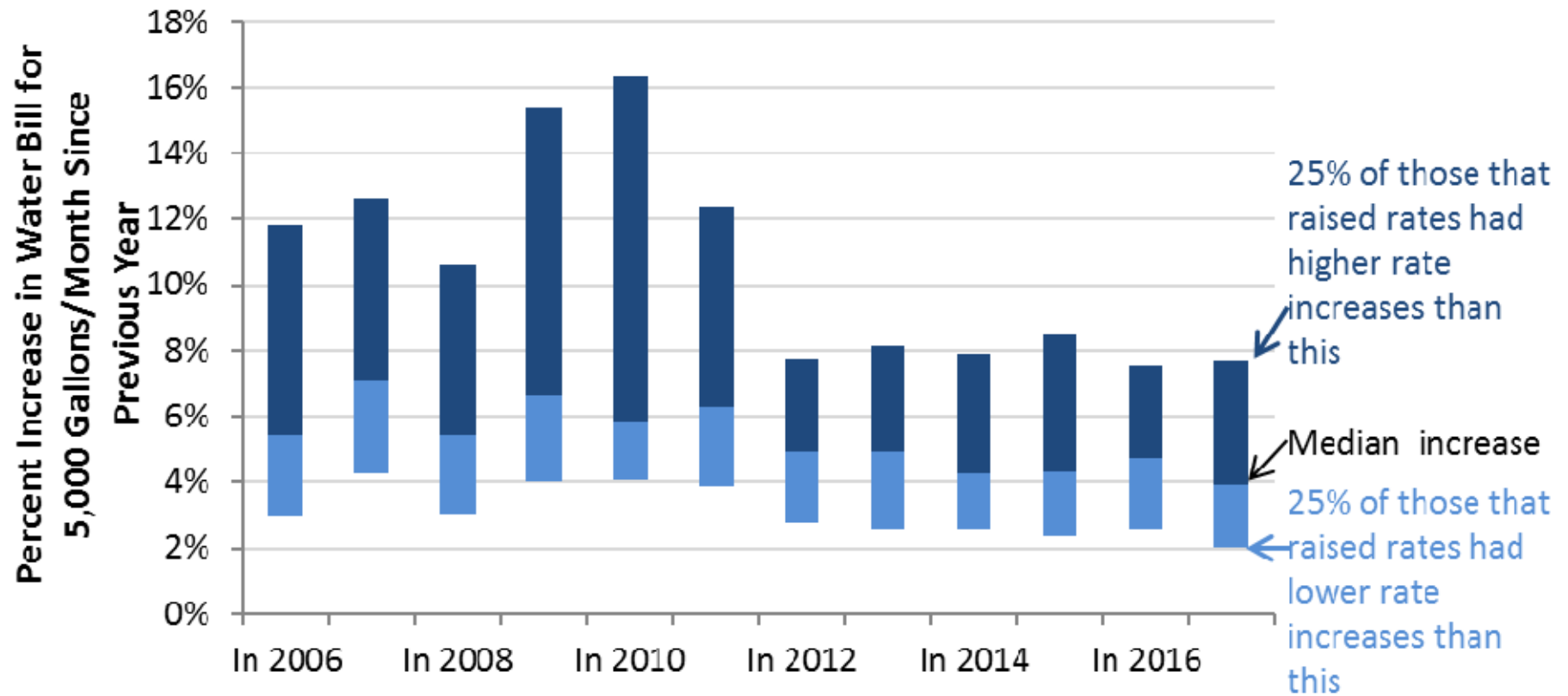
\$ Increase from Last Year to This Year

Half of the rate increases were for more than 4.1% (water) and more than 4.9% (wastewater)



% Increase from Last Year to This Year

Water rate increases among the same 173 NC utilities have slowed down since 2011, and recently been consistently around 3%-7%/year



The cohort of utilities is consistent across all years. Only utilities that raised rates are analyzed in each year.



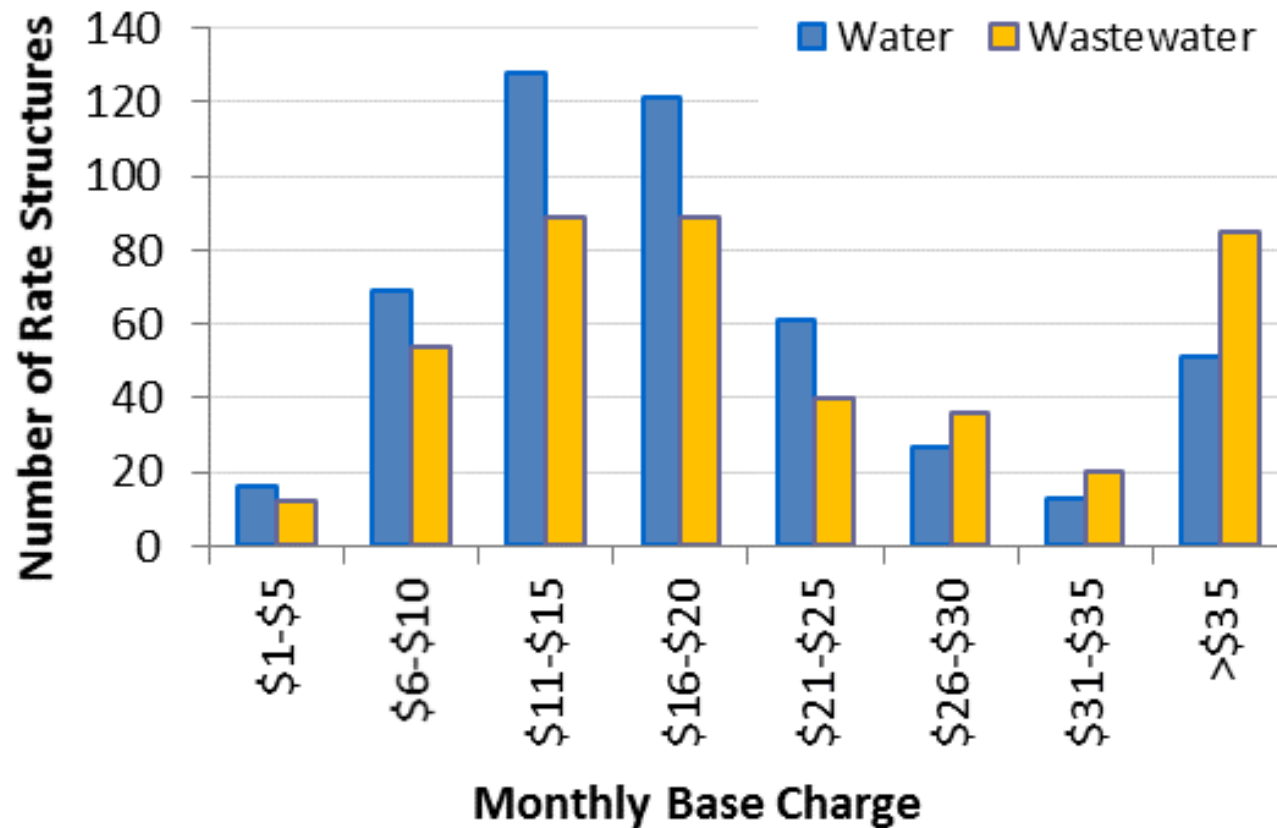
Published in 2017 NCLM/EFC North Carolina Water & Wastewater Rates Survey Report

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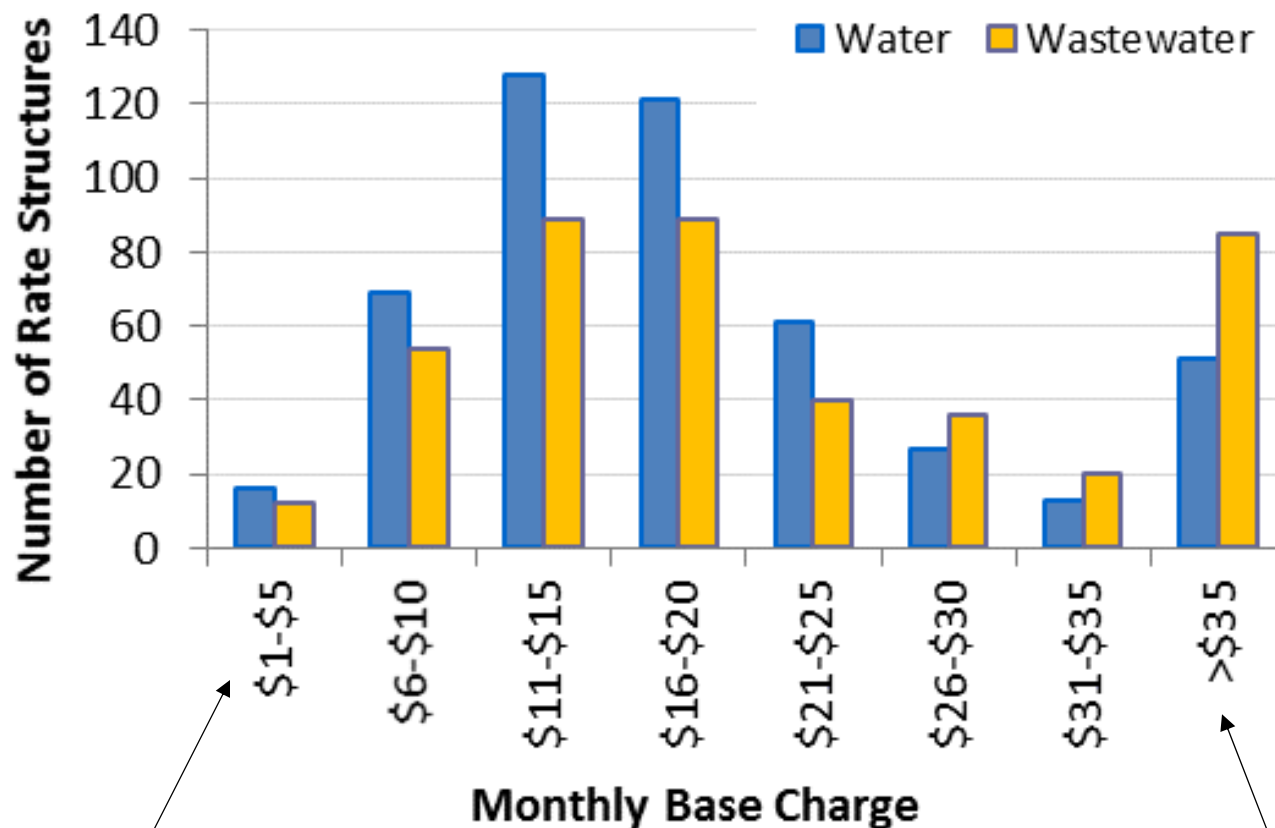


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Half of the utilities charge more than \$15.50/month for water and \$16.80/month for wastewater as a **base charge** for inside customers (or \$31.52/month for combined water and wastewater)



Cary: \$3.07  
Spring Hope: \$1.75

Unique sections of  
Stokes County and Franklinville: \$42.00  
(few Ocracoke Sanitary District customers pay more)  
Oak Island: \$79.25  
(few Currituck County customers pay more)

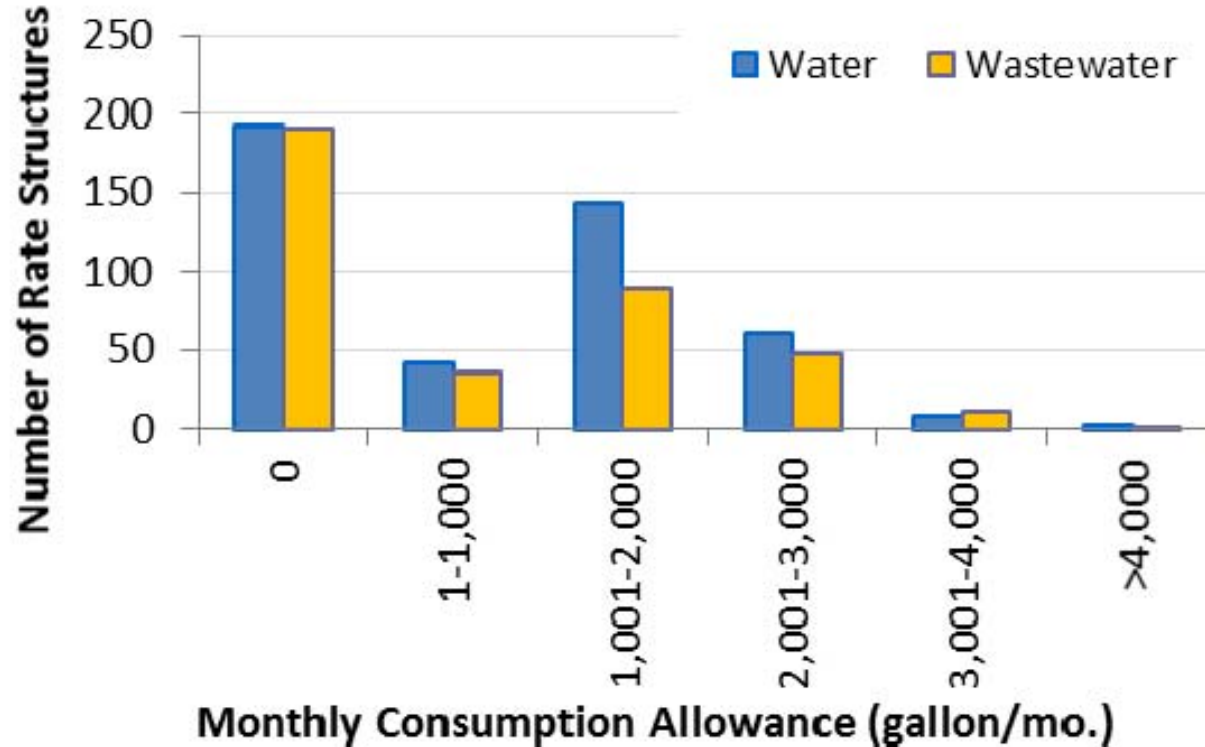


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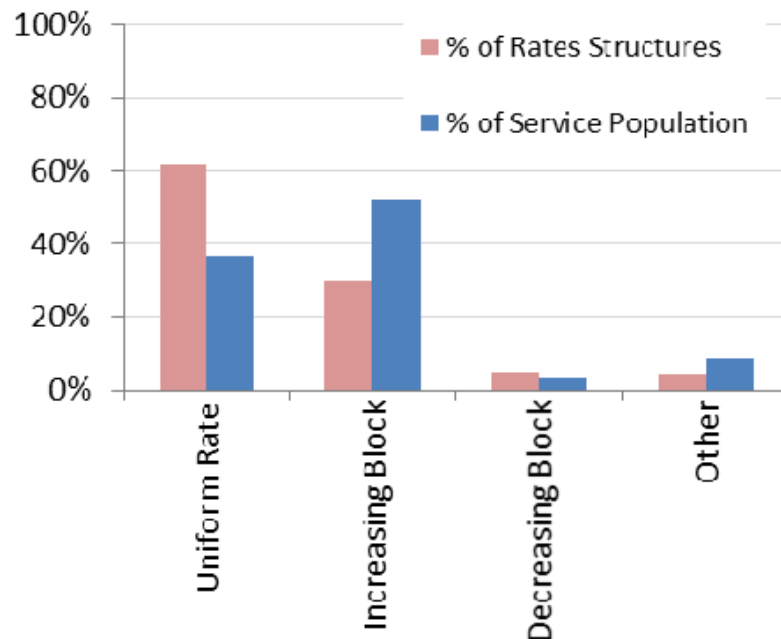


About **half** of the rate structures include a **consumption allowance** with the base charge

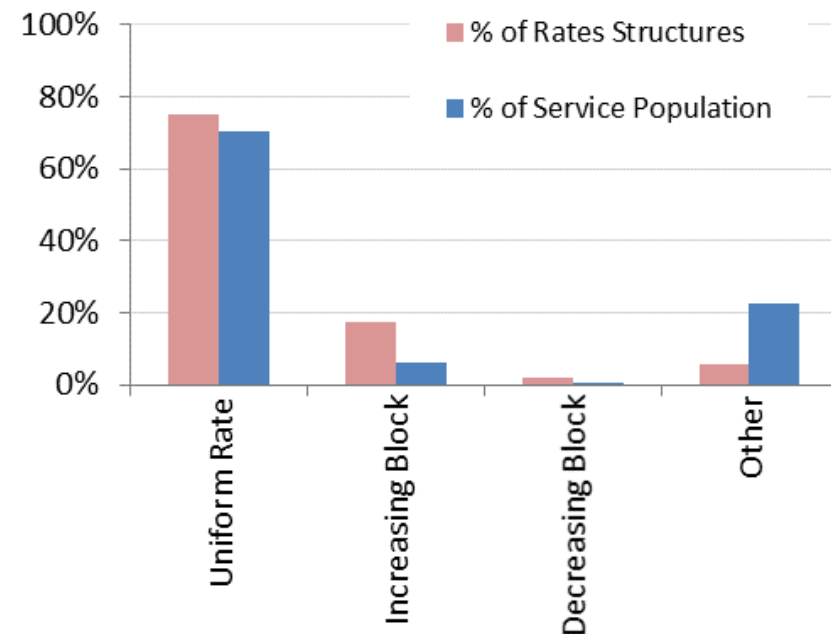
Most of them include **about 2,000** gallons/month

# Most customers are on increasing block water rates and uniform wastewater rates

## Water



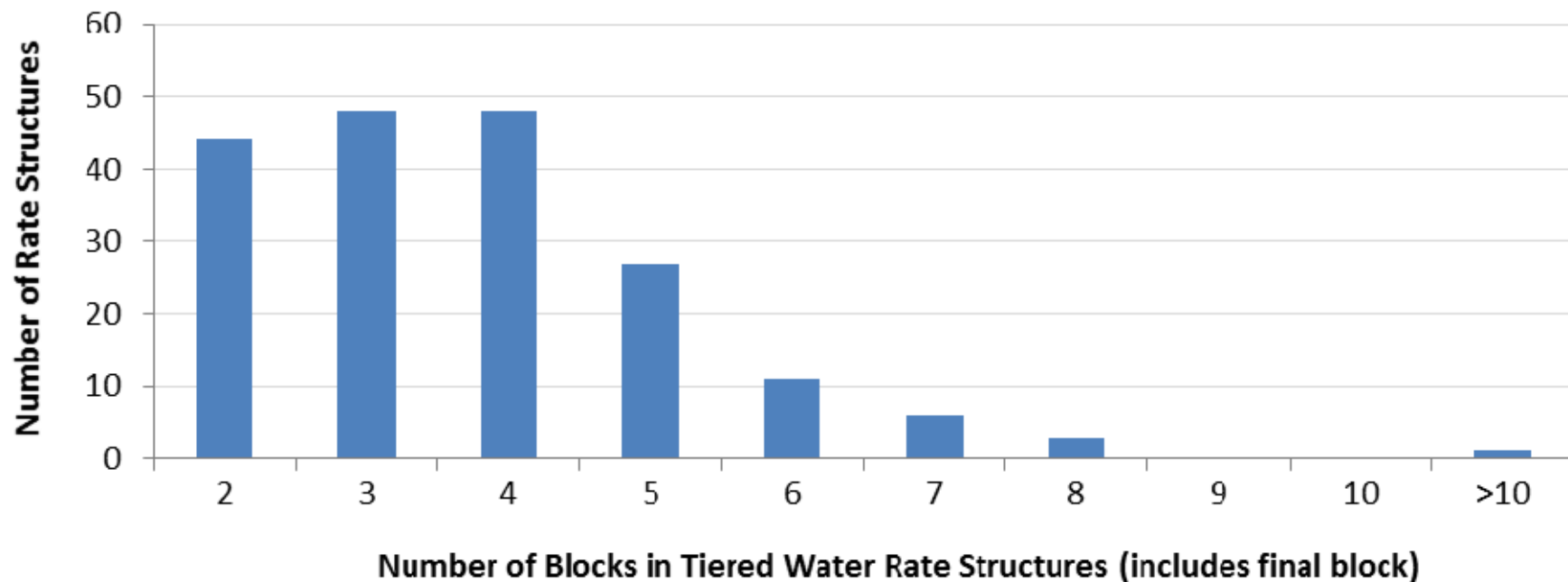
## Wastewater



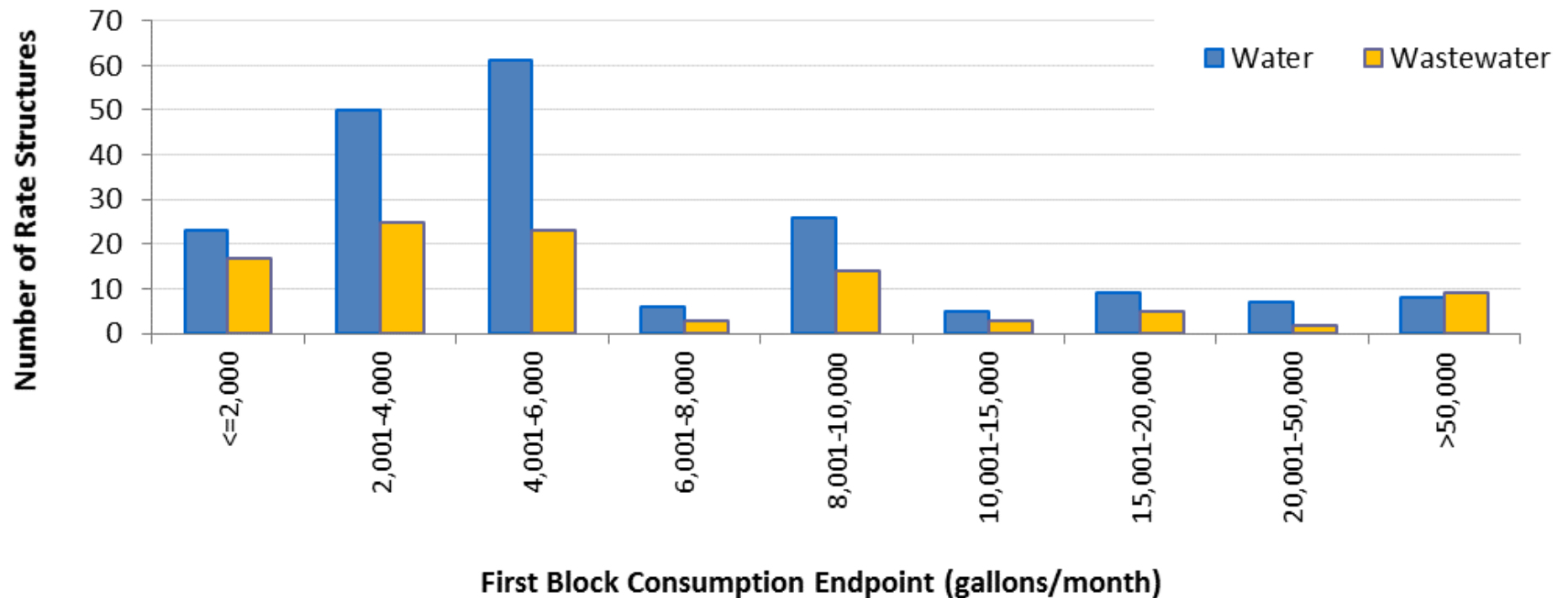
*Rate structures applicable to residential customers for consumption up to 15,000 gallons/month only*

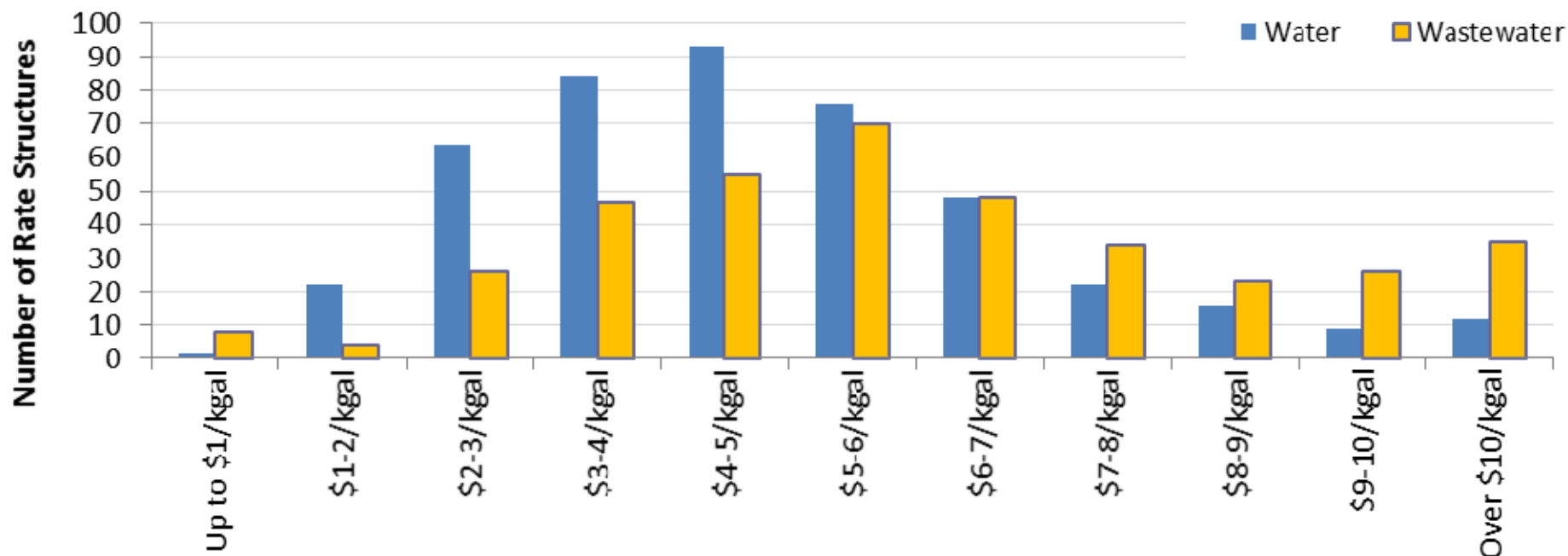


# Most tiered water rate structures have 4 or fewer blocks



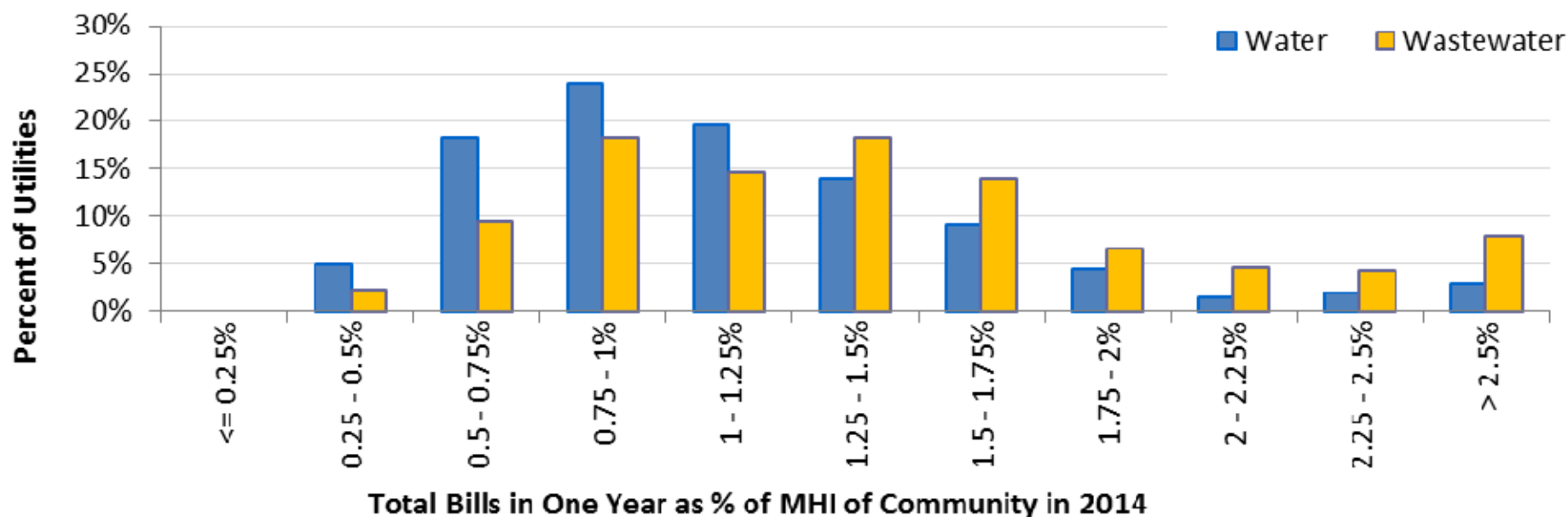
# The first block usually ends under 6,000 gallons/month





At 5,000 gallons/month, half of the utilities charge more than \$4.72/1000 gallons for water and \$5.79/1000 gallons for wastewater in **volumetric rates** for inside customers

Affordability of residential rates for inside customers:  
Half of the utilities charge more than 2.74% of MHI  
for combined water and wastewater service  
(>1.03% MHI for water rates; >1.34% MHI for wastewater rates)







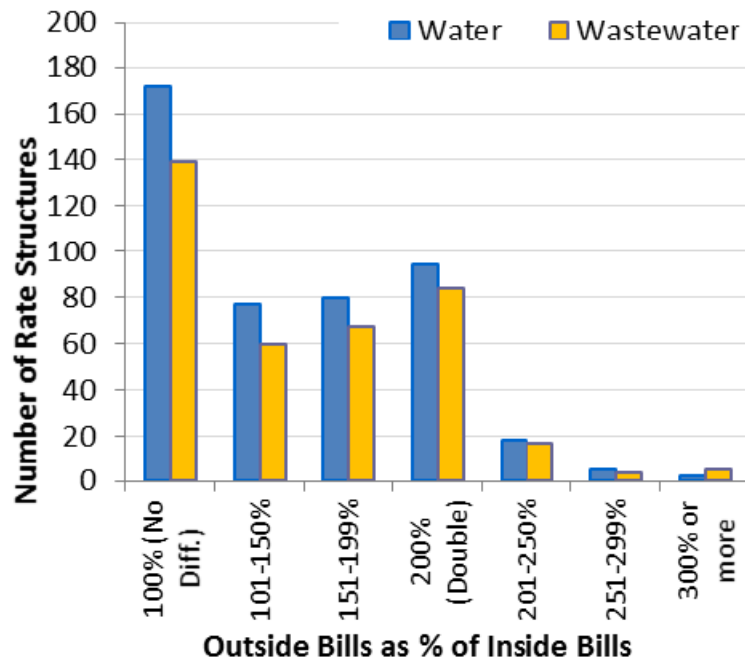
Picture Source: Wikimedia Commons

[https://commons.wikimedia.org/wiki/File:Raleigh\\_city\\_limits\\_sign.jpg](https://commons.wikimedia.org/wiki/File:Raleigh_city_limits_sign.jpg)

83% of NC's municipalities charge different rates outside city limits

Half of the municipalities charge 1.86x higher for water and 1.94x higher for wastewater than they do for inside customers

For residential customers using 5,000 gallons/month



Published in 2017 NCLM/EFC North Carolina Water & Wastewater Rates Survey Report

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# Pricing different services

- 31% use separate rate structures for **non-residential** customers
- 16% use separate rate structure for residential **irrigation** water



# THE NARROW FOCUS:

# EVALUATING YOUR UTILITY'S DATA ON THE RATES DASHBOARD



# Polling Question

What is the biggest challenge to setting rates in your utility?

- Difficulty with making projections
- Governing board's unwillingness to raise rates
- Communities' ability to pay more
- Pressure to keep rates comparable to other utilities
- Rising cost of other governmental taxes and fees



# Polling Question

What utility rates topics are you most concerned about? (select as many as you want)

- Cost recovery
- Affordability
- Conservation
- Comparability
- Board communication



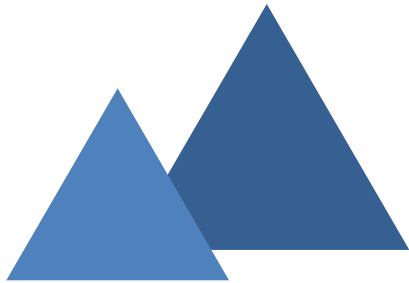


# Water/Wastewater Rates Dashboard

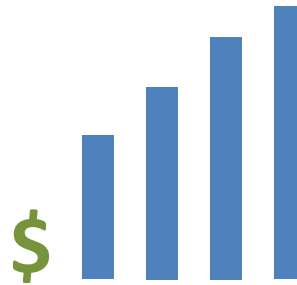
- Available at <http://efc.sog.unc.edu>
- Free; open to the public
- Compares rates across utilities
- Assesses recent financial performance
- Evaluates affordability
- Measures strength of conservation price signal



# Compare Utilities by...



Size



Rate Structure



Location



Demographics



Source



Financials

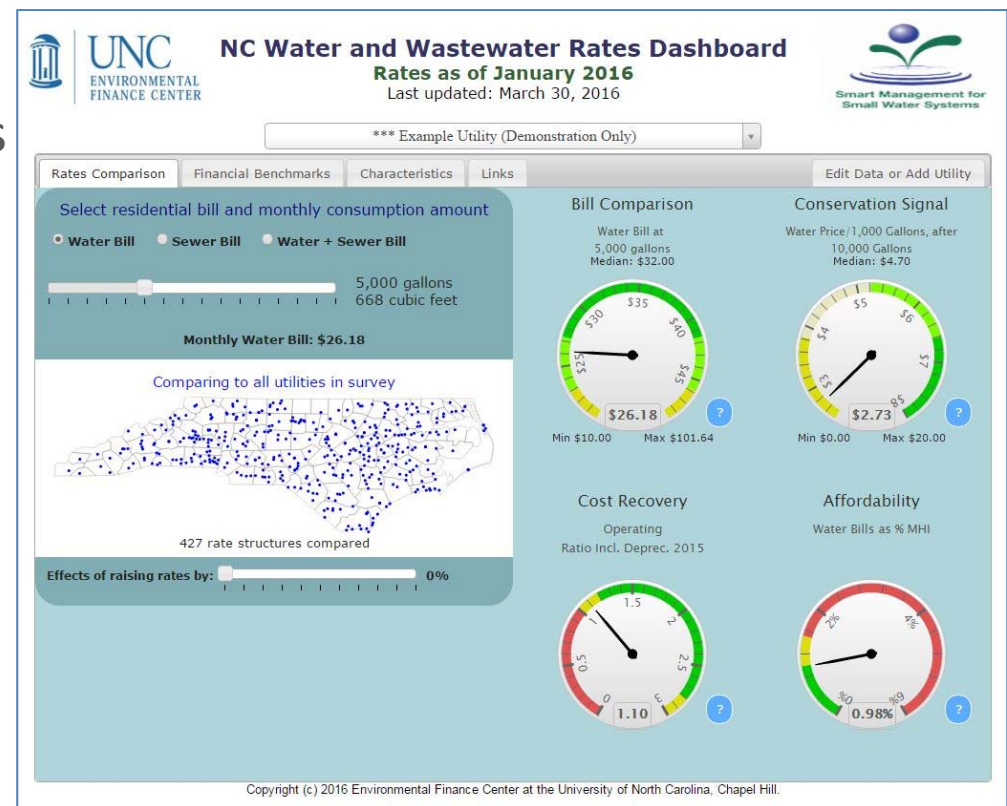


# Finding the NC Rates Dashboard

Go to: [efc.sog.unc.edu](http://efc.sog.unc.edu) and search for “North Carolina Rates Dashboard”

Or google search “NC water and wastewater rates dashboard EFC”

[Click here for a direct link](#)





# THE UNKNOWN:

## OTHER RESOURCES FOR UTILITIES TO ASSIST IN RATE-SETTING

Few of these resources were created by the Environmental Finance Center at the UNC School of Government as a resource for water systems funded under a cooperative agreement with the U.S. E.P.A., or through the NC Department of Environmental Quality Division of Water Resources



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# Webpage on NC Rates (with report, tables, Dashboards, more)

<http://efc.sog.unc.edu/> – Find it in Programs / Drinking Water

The Rates Dashboard, rates report, and data tables are all linked to from this webpage.  
Useful for utility managers, finance directors, funders, and consultants.

Or find the tables  
and report at  
<http://nclm.org>

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**PROJECT NORTH CAROLINA WATER AND WASTEWATER RATES AND RATE STRUCTURES**

Research conducted by the EFC and the North Carolina League of Municipalities. Funded in 2013 by the U.S. Environmental Protection Agency as part of the Smart Management for Small Water Systems project, and in prior years by the Public Water Supply section of the Division of Water Resources at the NC Department of Environment and Natural Resources.

**Project Tools**  
**North Carolina Water and Wastewater Rates Dashboard**  
 Dashboard, 03/10/2014 (Flash, 2.1 Mb)  
 This interactive rates and financial benchmarking dashboard is designed to assist utility managers and local officials with analyzing residential water and wastewater rates against multiple characteristics, including utility finances, system characteristics, customer base socioeconomic...

**Water & Sewer Rates Analysis Model**  
 Calculator, 11/10/2013 (MS Excel, 403 Kb)  
 An easy-to-use, simplified cash flow model that projects the water/wastewater utility's fund balance for the next 20 years under existing rates versus proposed new rates. Uniform ("flat") and block rate structures for both residential and non-residential customers can be assessed. Data inputs...

**Project Publications**  
**Annual Report of Water and Wastewater Rates and Rate Structures in North Carolina - January 2014**  
 Shadi Eskaf, David Tucker, Jacob Mouny, Chris Nida (NC League of Municipalities)  
 Report, 03/07/2014  
 This report details the state of rates and rate structures from a statewide system of drinking water...

**All related publications and tools are shown in the boxes to the left. Shortcut to:**

- Description of the Annual NC Water and Wastewater Rates Survey
- Reports, Tables and Dashboards of NC Water and Wastewater Rates and Rate Structures (**NEW: March 7 2014**)
- View Your Utility's Water and Wastewater Rate Sheet(s)
- Financial Management of Water Systems in North Carolina (Water System Capacity Development webpage, includes multiple resources)
- Capital Planning Resources
- NC Connection (Tap) Fees and System Development Charges (Impact Fees) in North Carolina
- Utility Rate Setting for Cost Recovery and Conservation in NC

**Description of the Annual NC Water and Wastewater Rates Survey**



[www.efcnetwork.org](http://www.efcnetwork.org)





# Webpage on NC Rates

Also includes  
information and  
recorded webinars on:

Impact fees/Tap fees

Blog posts on NC  
rates, fees, mandatory  
connections, etc.

The screenshot shows the website for the UNC Environmental Finance Center. The header includes the UNC logo and navigation links: About, Services, Programs, Resources, Events. A search bar is also present. The main content area is titled 'PROJECT NORTH CAROLINA WATER AND WASTEWATER RATES AND RATE STRUCTURES'. It features a 'Mission Statement' on the left, a 'Project Tools' section with links to a 'North Carolina Water and Wastewater Rates Dashboard' and a 'Water & Sewer Rates Analysis Model', and a 'Project Publications' section. On the right, there is a description of the project, logos for the NC League of Municipalities, Smart Management for Small Water Systems, and NCDENR, and a list of related publications and tools.

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About Services Programs Resources Events

**MISSION STATEMENT**  
We work to enhance the ability of governments and other organizations to provide environmental programs and services in fair, effective and financially sustainable ways.

**PROJECT TOOLS**  
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**NC LEAGUE OF MUNICIPALITIES**  
**Smart Management for Small Water Systems**  
**NCDENR**

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**Description of the Annual NC Water and Wastewater Rates Survey**



[www.efcnetwork.org](http://www.efcnetwork.org)



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# NC Rate-Setting Resources

- Call the EFC / SOG
- *Guide to Billing and Collecting Public Enterprise Utility Fees for Water, Wastewater, and Solid Waste Services* (by Kara Millonzi, SOG)
- EFC website (<http://efc.sog.unc.edu>) offers:
  - NC Rates Dashboard
  - Do-it-yourself Excel tools for rate scenarios and capital planning
  - *Designing Rate Structures that Support Your Objectives* guide
  - 2010 NCLM/EFC Financial Practices & Policies Survey
  - Additional Data, guidelines, reports, and tools
  - Blog: <http://efc.web.unc.edu/>
- LGC Fiscal Analysis Dashboard
- “Painful Art of Rate Setting” article in *Popular Government*
- AWWA M1 Manual, EPA Rate Setting workbooks, etc.
- NCLM, NCACC, COGs
- Rural Water Association, SERCAP, Consultants, etc.



# Various Decision-Making Tools

<http://www.efc.sog.unc.edu/project/utility-financial-tools>

or <http://efcnetwork.org/resources/tools/>



The EFC has created several free tools to assist water utilities in addressing the challenges and questions we commonly see in our teaching and advising. These tools cover a broad range of finance and management topics, including rates and revenue, financial benchmarking, affordability, capital finance, communicating with the board, and evaluating loans and grants.

## Rates and Revenue

### **Water and Wastewater Rates Analysis Model**

Use this tool to review your rates to ensure projected revenues cover projected expenses. This tool will help you determine whether proposed rates will keep the utility financially self-sufficient for the next few years.

### **Water Utility Revenue Risk Assessment Tool**

Use this tool to assess how much revenues might be affected by changing demand patterns. The tool will help you compare effects on existing rates and on alternative rate structures.

## Benchmarking

### **Financial Sustainability and Rates Dashboards**

Our flagship tools for water utilities, these interactive dashboards allow you to benchmark your utility's rates against other utilities with similar characteristics. The dashboards also help you evaluate rates, cost recovery, affordability, pricing signal, and other financial benchmarks. Use the dashboards to communicate important information about your rates with your board, the media, and the public.



[www.efcnetwork.org](http://www.efcnetwork.org)






# Financial Health Checkup for Water Utilities

<http://efc.sog.unc.edu> or <http://efcnetwork.org>


Find the most up-to-date version in Resources / Tools

Free, simplified Excel tool allowing you to track and benchmark financial performance metrics for your water/sewer fund in the past 5 years

**Financial Health Checkup for Water Utilities**



Developed by the Environmental Finance Center  
at the University of North Carolina, Chapel Hill  
<http://efc.sog.unc.edu>




A resource for water systems through the Environmental Finance Center Network's  
Smart Management for Small Water Systems project, funded under a cooperative  
agreement with the U.S. Environmental Protection. <http://efcnetwork.org>

**What does this tool do?**  
This tool assists in the assessment of the financial performance of a water (and/or wastewater) utility fund. Financial data readily available in annual financial statements are copied into this tool, which computes key financial indicators that measure a variety of important metrics, such as the ability to pay debt service, availability of cash to pay for operations and maintenance, the sufficiency of revenues generated, etc. Each metric is for the user. The tool demonstrates the financial strengths and weaknesses of the utility fund in the past 5 years.

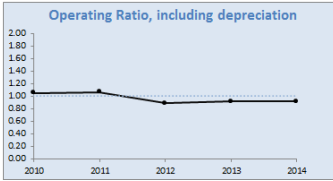
**Features:**  
Simple data entry (uses data already reported in your audited financial statements)  
6 financial performance indicators with explanations  
Set your own targets  
Assessment of last year's financial ratios, improvements since previous year, and five-year trends  
Guided navigation through hyperlinked images

**What are financial indicators?**  
Watch a whiteboard video explaining financial performance indicators in lay terms.



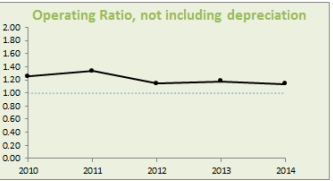
Did you generate the revenues needed to pay for O&M and a little for capital?

**Operating Ratio, including depreciation**



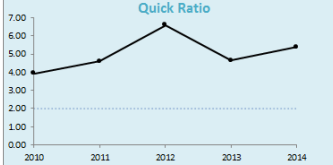
Did you generate the revenues needed to pay for O&M by itself?

**Operating Ratio, not including depreciation**



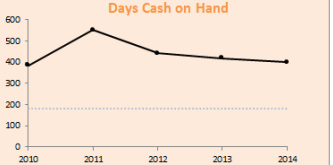
Did you have enough liquidity to pay your current liabilities at the end of the year?

**Quick Ratio**



How many days could you continue to operate the utility with the cash levels available?

**Days Cash on Hand**





[www.efcnetwork.org](http://www.efcnetwork.org)








# Water & Wastewater Rates Analysis Model

<http://efc.sog.unc.edu> or <http://efcnetwork.org>

Find the most up-to-date version in Resources / Tools


**Free, simplified Excel tool allowing you to model and compare two rate structures on your projected fund balance**

**Water & Wastewater Rates Analysis Model**  
Version 2.8.2 (last updated August 4, 2015)



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Developed by the Environmental Finance Center at the University of North Carolina, Chapel Hill  
<http://efc.sog.unc.edu>



Funded by the U.S. Environmental Protection Agency and the Public Water Supply Section of the North Carolina Department of Environment and Natural Resources


**DESCRIPTION**  
A do-it-yourself, simplified financial model to assist utility managers and private system owners in setting water and wastewater rates.

**FEATURES**

- Comparisons of annual fund balance projections (for up to 20 years) under proposed new rates vs. staying with existing rates
- Adjust rates for the next 1-5 years
- Up to 12 rate structures
- Uniform or block rates (up to 10 blocks)
- Model changes to accounts and water use
- Customizable list of operating and capital expenses
- Building up reserves through rates
- Compare monthly bills under new rates vs. existing rates
- Assess revenue sufficiency and fund balance
- Error notifications

**INSTRUCTIONS**

1) Navigate using worksheet tabs at bottom of screen or following arrows and clicking on buttons

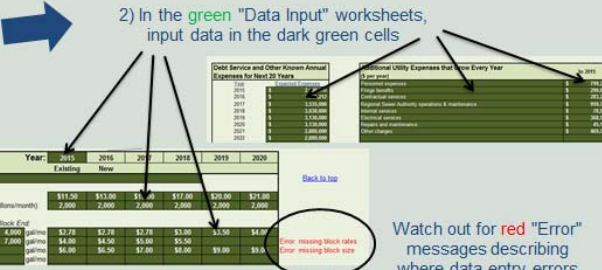


**View Results**

Financial forecast of the next few years under "Existing" rates versus "New" rates (graphs of cost recovery and end-of-year fund balance)

How new rates compare to existing rates (graphs of monthly bills)

2) In the green "Data Input" worksheets, input data in the dark green cells



Watch out for red "Error" messages describing where data entry errors



[www.efcnetwork.org](http://www.efcnetwork.org)



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# Plan to Pay: Scenarios to Fund your C.I.P.

<http://efc.sog.unc.edu> or <http://efcnetwork.org>

Find the most up-to-date version in Resources / Tools

Free, simplified Excel tool allowing you to list your capital projects and plans for funding them, and automatically estimates rate increases

Tool developed by  
**UNC ENVIRONMENTAL FINANCE CENTER**

## Plan to Pay: Scenarios to Fund your C.I.P. (Capital Improvement Plan)

Version 2.6 (Updated November 2015)

20-year capital planning    Debt and/or capital reserve financing options    Guided data inputs    Simple data needs

Financial dashboard outputs    Estimates necessary rate increases over time to pay for capital projects

**Start**

1) Use tabs at bottom of screen and buttons to navigate to different pages.

2) In **"Data Input 1"**, enter utility characteristics, rates and usage information in blue cells.

3) In **"Data Input 2"**, enter details on capital improvement projects in the light blue cells. Each row is a different project.

4) In **"20-Year Projections"**, view your fund balance projections for 20 years and observe the estimated rate increases needed each year to pay for your Capital Improvement. No data entry required on this page.

5) After all your utility information and capital improvement project details are entered, go to the **"Dashboard"** to view long term trends in your financial reserves, rate increases and average bills, and capital investments.

**INSTRUCTIONS**

**FINANCED**  
\$ 950,000  
et \$ 750,000

**Pre-Exist**  
Input amount incurred for

**Capital Improvement Projects - 20 Years**

Project	Project Description	Project Start Year	Project End Year	Project Cost (\$)	Annual Construction Cost (\$)	Annual Construction Cost Factor	Estimated Cost at the Start of Year	Estimated Cost at the End of Year
1	Water main replacement	2015	2016	100,000	100,000	1.0	100,000	100,000
2	Water main replacement	2017	2018	100,000	100,000	1.0	100,000	100,000
3	Water main replacement	2019	2020	100,000	100,000	1.0	100,000	100,000
4	Water main replacement	2021	2022	100,000	100,000	1.0	100,000	100,000
5	Water main replacement	2023	2024	100,000	100,000	1.0	100,000	100,000
6	Water main replacement	2025	2026	100,000	100,000	1.0	100,000	100,000
7	Water main replacement	2027	2028	100,000	100,000	1.0	100,000	100,000
8	Water main replacement	2029	2030	100,000	100,000	1.0	100,000	100,000
9	Water main replacement	2031	2032	100,000	100,000	1.0	100,000	100,000
10	Water main replacement	2033	2034	100,000	100,000	1.0	100,000	100,000
11	Water main replacement	2035	2036	100,000	100,000	1.0	100,000	100,000
12	Water main replacement	2037	2038	100,000	100,000	1.0	100,000	100,000
13	Water main replacement	2039	2040	100,000	100,000	1.0	100,000	100,000
14	Water main replacement	2041	2042	100,000	100,000	1.0	100,000	100,000
15	Water main replacement	2043	2044	100,000	100,000	1.0	100,000	100,000
16	Water main replacement	2045	2046	100,000	100,000	1.0	100,000	100,000
17	Water main replacement	2047	2048	100,000	100,000	1.0	100,000	100,000
18	Water main replacement	2049	2050	100,000	100,000	1.0	100,000	100,000
19	Water main replacement	2051	2052	100,000	100,000	1.0	100,000	100,000
20	Water main replacement	2053	2054	100,000	100,000	1.0	100,000	100,000

**Estimated Rate Changes Needed to Maintain the Fund Balance**

	FY15	FY16	FY17	FY18
Year Increase (Decrease) in Rate Base and Investment	N/A	0.0%	0.1%	2.0%
Increase (Decrease) in the Monthly Bill for 5,000 Gallons	N/A	\$0.00	\$1.01	\$0.79
Increase (Decrease) in the Monthly Rate Charge	N/A	\$0.00	\$0.04	\$0.34
Monthly Rate Charge ("Minimum Charge")	\$12.34	\$12.34	\$12.98	\$13.31
Volume Rate at 5,000 gallons/month (\$/100 gallons)	\$5.67	\$5.67	\$5.96	\$6.11
Volume Included with the Base Charge (1,000 of gallons)	2	2	2	2
Approximate Monthly Charge for 5,000 gallons (\$)	\$29.35	\$29.35	\$30.96	\$31.65

**Projected Fund Balance**

	FY15	FY16	FY17	FY18
Total Revenues	\$ 510,000	\$ 503,589	\$ 528,367	\$ 554,005
Rate Charges	\$ 1,776,960	\$ 1,795,322	\$ 1,807,288	\$ 1,903,720
Usage Charges	\$ 3,153,840	\$ 3,094,086	\$ 3,216,188	\$ 3,287,762
Interest Earned from Previous Year's Positive Balance	\$ 5	\$ 9,405	\$ 9,167	\$ 9,007
Revenues from Other Sources (Reserve Charges)	\$ 103,200	\$ 104,266	\$ 106,348	\$ 108,431
Total Revenues, Including Reserves	\$ 5,443,005	\$ 5,406,668	\$ 5,667,256	\$ 5,863,926

**Financial Reserves (End of Year)**

**Rate Increases**

**Total Capital Expenses**

**Total Cumulative System Investment**



[www.efcnetwork.org](http://www.efcnetwork.org)



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# Water & Wastewater Residential Rates Affordability Assessment Tool

<http://efc.sog.unc.edu> or <http://efcnetwork.org>

Find the most up-to-date version in Resources / Tools

UNC ENVIRONMENTAL FINANCE CENTER  
Tool developed by the Environmental Finance Center at the University of North Carolina, Chapel Hill

## Water & Wastewater Residential Rates Affordability Assessment Tool

Interactive Spreadsheet Tool  
Version 1.3 (February 2, 2017)

This tool allows users to enter relevant Census data on their service community to help assess the affordability of their water or wastewater rates on their residential customers. The tool also allows for a new rate structure to be entered to see how affordability compares from one rate structure to the next.

In the "Inputs" worksheet, fill in all yellow-colored cells.

**Data Inputs**

**1) Utility Information**  
Name of the utility:  
Select the state, District of Columbia, or Puerto Rico from the dropdown menu:  
Assess affordability of water, wastewater or combined water & wastewater rates?

**2) Monthly Charges at [Near] the Average Residential Water Use**  
What is the approximate average residential monthly consumption?

4,300 gallons/month or

Begin data inputs

In the "Assessment" worksheet, the tool automatically populates tables and charts to assist you in assessing the affordability of your utility's current and alternative rates for the average customer, low-income customers, and customers of varying ranges of income.

	Current rates	Alternative rates
Monthly water & wastewater bill at 3700 gallons/month	\$76.95	\$78.49
Annual bills at same level of use	\$923.40	\$941.87
Median household income in 2014 for [State]	\$33,494	
Water & Wastewater % MHI	2.76%	2.81%

Affordability of Water & Wastewater Rates Assessed at 3700 Gallons/Month and the 2014 Income Levels

Under CURRENT Rates

36.5% of households are estimated to be low income.

36.5% of residential customers are estimated to have had less than \$25,000 in annual income. These households will have spent more than 5.08% of their income under the current rates for water & wastewater bills at 3700 gallons/month. 13.2% of households will have spent more than 5.0% of their income. However, a substantial number of low-income households may be living in rental homes and apartments and do not pay water & wastewater bills, which may be included in their rent.



[www.efcnetwork.org](http://www.efcnetwork.org)



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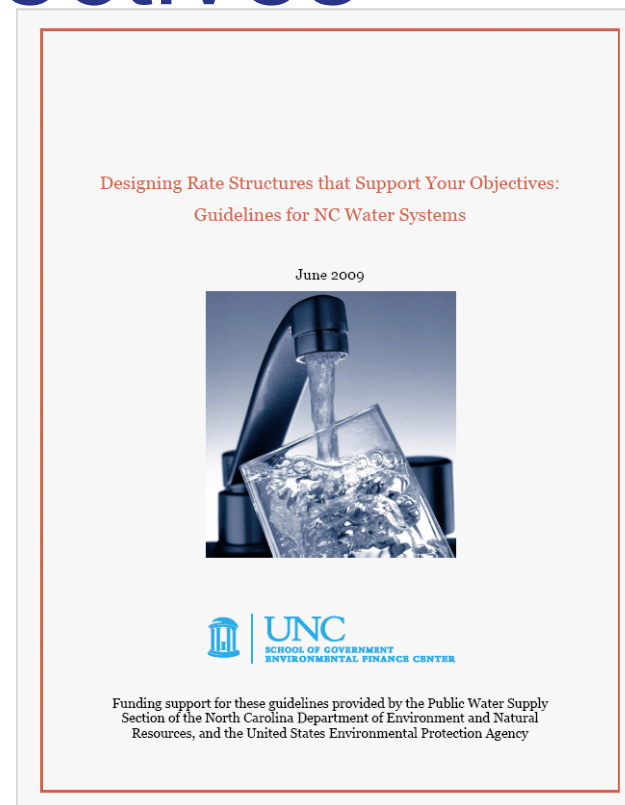


# Designing Rate Structures that Support your Objectives

Guide written  
for system  
managers

Available at:

<http://efc.sog.unc.edu/>



[www.efcnetwork.org](http://www.efcnetwork.org)



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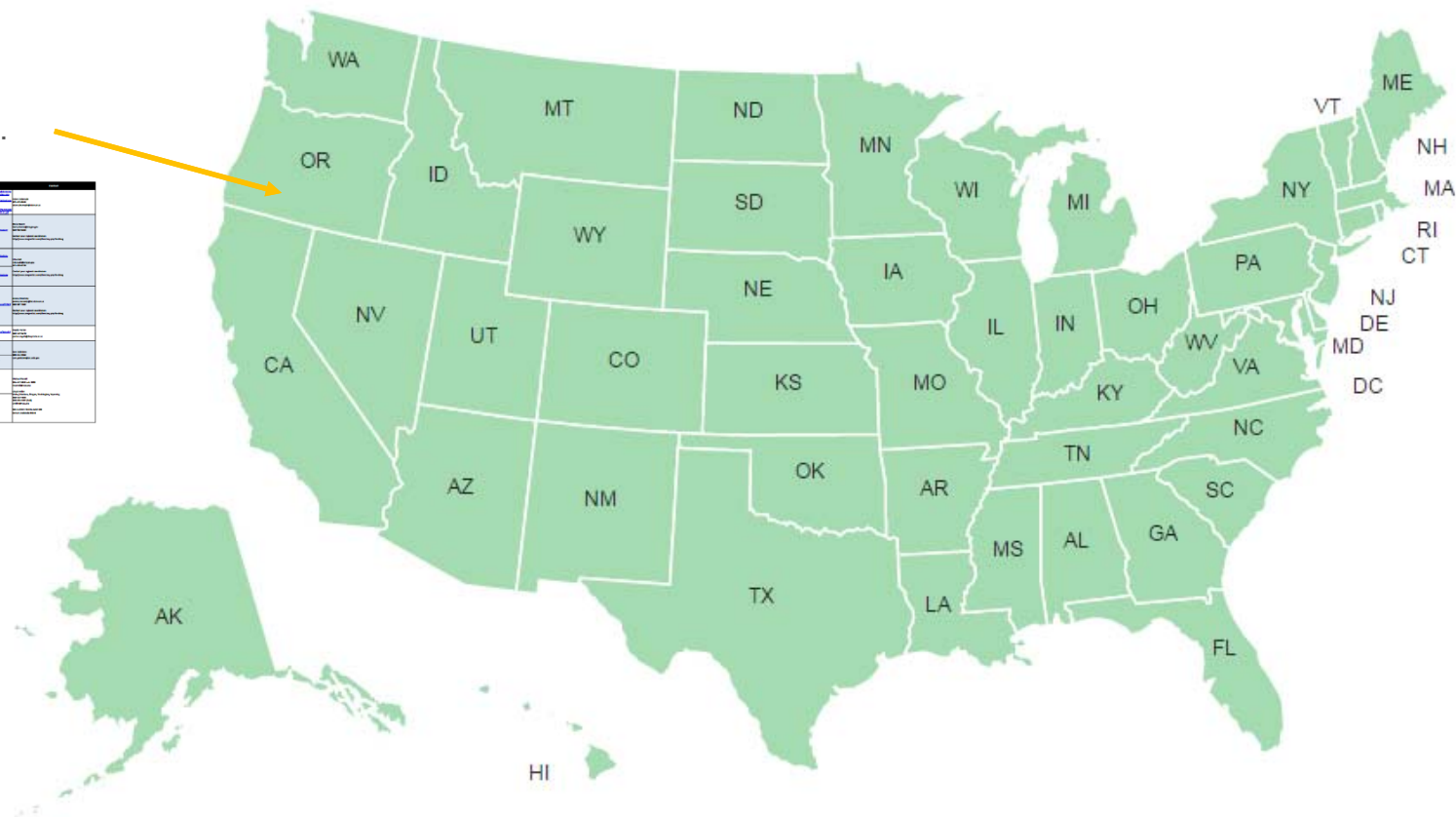
# Funding Sources by State

*Note: Some states may have additional resources listed below the map.*

Click on the map below to view funding sources for each state:

Click on an individual state to view funding table.

State	Funding Source	Amount	Year	Notes
CA	State Water Resources Control Board	\$100,000,000	2010	Statewide water infrastructure program
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CA	State Water Resources Control Board	\$100,000,000	2010	Statewide water infrastructure program
CA	State Water Resources Control Board	\$100,000,000	2010	Statewide water infrastructure program
CA	State Water Resources Control Board	\$100,000,000	2010	Statewide water infrastructure program





# Subscribe to Keep Up-to-Date with the *Environmental Finance* Blog

<http://efc.web.unc.edu>

Examples of relevant blog posts:

- Declining demands in NC
- Increasing rates in NC
- Operating ratios in NC
- Water debt in NC
- What's wrong with %MHI
- Financial strategies
- Communication strategies
- Cost of capital
- And much more!



**10 Statistically-Proven Tips for Getting Higher Water Rates Approved (Based on a Survey of >1,000 Utilities)**



[www.efcnetwork.org](http://www.efcnetwork.org)

LLXIM

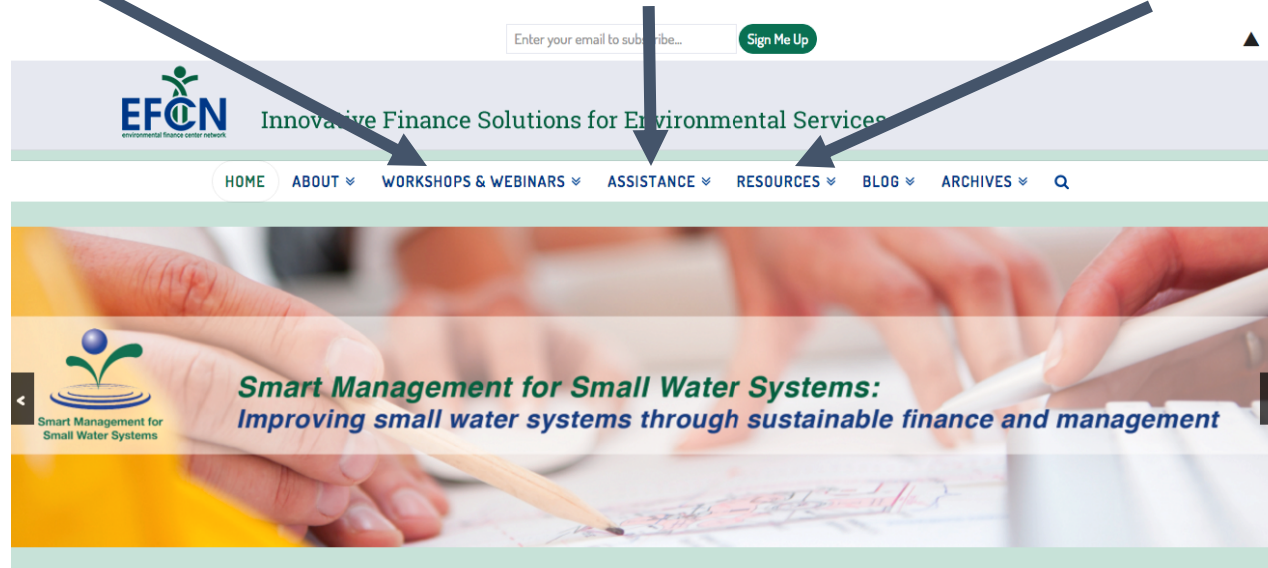
# Small water systems

## [www.EFCNetwork.org](http://www.EFCNetwork.org)

Workshops, webinars,  
and recordings

Sign up for free in-depth  
(multi-day or multi-hour)  
direct assistance

Collection of resources for  
small water systems  
(tools, guides)



Free, thanks to  
a cooperative  
agreement with  
the U.S. E.P.A.



[www.efcnetwork.org](http://www.efcnetwork.org)



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# Polling Question

Would you like to subscribe to the Environmental Finance Center's blog?

- Yes
- No



# Polling Question

If you are a small water system (10,000 or fewer people served), are you interested in receiving in-depth technical assistance?

- Yes
- No
- Not sure – I'd like more details





Please let us know if you have any questions.

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